

COUNTY OF SUFFOLK



MICHAEL A. LOGRANDE
SUFFOLK COUNTY EXECUTIVE

DEPARTMENT OF HEALTH SERVICES

DAVID HARRIS, M.D., M.P.H.
COMMISSIONER

TO: Warren Black
U.S. Environmental Protection Agency

FROM: Steven Cary
Bureau of Groundwater Resources and Reclamation

DATE: December 14, 1987

SUBJECT: COUNTY AIRPORT IN WESTHAMPTON BEACH

Enclosed please find a summary of the fuel plume investigation at Suffolk County Airport in Westhampton Beach. Also enclosed are recent monitoring data sheets indicating present product thickness levels.

Analysis on the unidentified product was performed by the U.S. Coast Guard's Oil Spill Identification Laboratory in December 1986. Plume samples were "overall very similar, having the characteristics of a slightly weathered light petroleum distillate most closely resembling a JP-4 jet fuel."

SC/jb
Enc.



FOLK COUNTY DEPARTMENT OF HEALTH SERVICES
MONITORING WELL REPORT

Site: County Airport (85-2503) Date: 11-30-87

| Well # | Thickness of Product Layer (in) | (ft) | Depth to Liquid Surface (tape reading) | (ft) | Depth to Groundwater (ft) |
|--------|---------------------------------------|------|--|-------|------------------------------|
| 1 | | .61 | | 33.94 | 34.55 |
| 2 | | 0 | | 34.40 | 34.40 |
| 3 | | .02 | | 34.26 | 34.28 |
| 4 | | .68 | | 33.52 | 34.20 |
| 5 | | .73 | | 33.87 | 34.60 |
| 6 | | .33 | | 34.16 | 34.49 |
| 7 | | 0 | | 32.73 | 32.73 |
| 8 | | .85 | | 33.03 | 33.88 |
| 9 | | .57 | | 33.11 | 33.68 |
| 10 | | .81 | | 33.24 | 34.05 |
| 11 | | .89 | | 33.16 | 34.05 |
| 15 | | .02 | | 34.78 | 34.80 |
| 16 | | .77 | | 33.68 | 34.45 |
| 17 | | .02 | | 33.68 | 33.70 |
| 18 | | 0 | | 33.33 | 33.33 |
| 26 | | 0 | | 33.64 | 33.64 |
| 27 | | .72 | | 34.16 | 34.88 |
| 28 | | .02 | | 34.84 | 34.86 |
| 29 | | 0 | | 34.58 | 34.58 |
| 30 | | 0 | | 31.45 | 31.45 |
| 40 | | 0 | | 30.40 | 30.40 |
| 41 | | 0 | | 32.52 | 32.52 |
| 42 | | 0 | | 31.98 | 31.98 |
| 43 | | 0 | | 32.48 | 32.48 |
| 44 | | 0 | | 33.70 | 33.70 |

COUNTY OF SUFFOLK



PETER F. COHALAN
SUFFOLK COUNTY EXECUTIVE

DEPARTMENT OF HEALTH SERVICES

DAVID HARRIS, M.D., M.P.H.
COMMISSIONER

TO: Aldo Andreoli

DATE: November 17, 1986

FROM: Joseph Baier

SUBJECT: FUEL CONTAMINATION OF GROUNDWATER - COUNTY AIRPORT,
WESTHAMPTON

Attached is a report on fuel contamination at the Westhampton Airport. It has been estimated some 40,000 gallons of floating product are present on top of the groundwater table. Unfortunately, the source of the plume has not been identified. It may be a combination of formerly stored diesel fuel from the adjacent bus company, gasoline from two adjacent county fuel tanks, waste oil from an underground storage tank at the bus company, or a yet to be discovered fuel spill. The floating product appears to be diesel or a mixture of fuels (possibly jet fuel).

In any case, a recovery system needs to be installed. We expect that two pumping wells will be installed at the southern end of the plume, with the well water being pumped to the north end of the plume and recharged into basins yet to be constructed. It is estimated the recovery system will cost close to \$100,000 to construct and will need to be operated for a period of 3 years.

Plans and bid specifications are being prepared and will be submitted to the Purchasing Department. Interfacing will also be necessary with DPW and the Airport Manager for the eventual operation of the system.

JHB/jb *[Signature]*
Attach.

FUEL CONTAMINATION OF GROUNDWATER:
SUFFOLK COUNTY AIRPORT, WESTHAMPTON

I. Background

Westhampton Airport (Figure 1), in the Town of Southampton, was built by the U.S. Air Force during World War II, and was an active air base during the Korean War. Suffolk County purchased the facility from the Federal Government in 1970, and around 1977 began leasing buildings on the property to commercial and light-industrial operations. The southern portion of the airport is currently leased to the Air National Guard.

In October 1985, during the course of a scheduled Article 12 tank test by SCDHS personnel, a 2,000-gallon county-owned gasoline tank on the west side of the airport failed a Petro-Tite test. Tank inventory records indicate deliveries of only 2,000 gallons per year, with no apparent loss.

The tank was removed in November 1985. Soil samples taken below the tank location showed some evidence of gasoline contamination, and several cubic yards of material were ordered removed by the NYSDEC. A groundwater monitoring program was subsequently initiated by the SCDHS (see Section III, below).

The failed tank was located behind a county-occupied building (P-39, Figure 2), about 1,000 feet east of Old Riverhead Road on the western side of the airport property (Figure 1). The tank was used to store gasoline for county maintenance vehicles. A 2,500 gallon gasoline tank at the same site had failed pressure tests in 1980 and was removed; a third tank on the site was abandoned and filled with sand in 1981.

A bus company has leased the county building immediately to the west of P-39 during the last 3-4 years, and has used it for a repair shop (Figure 2). This building had been used by the Air Force prior to 1969 for the servicing of fuel trucks. A line of abandoned cesspools is located immediately to the northeast of the site; further north are various commercial operations in buildings leased from the county. The closest residential dwelling is located south of the airport property, about 3/4 miles from the spill site.

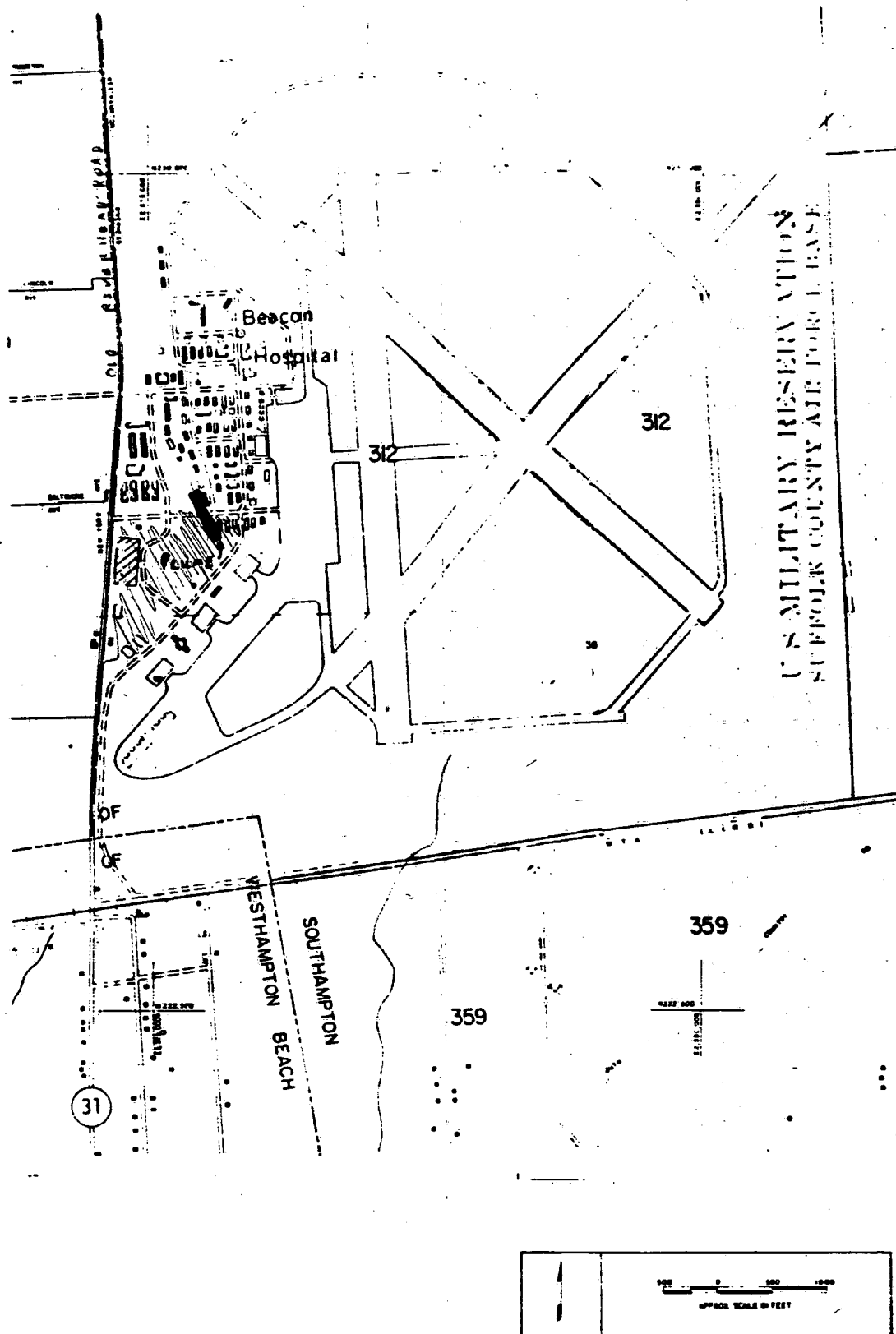


FIG. 1 LOCATION MAP: WESTHAMPTON COUNTY AIRPORT

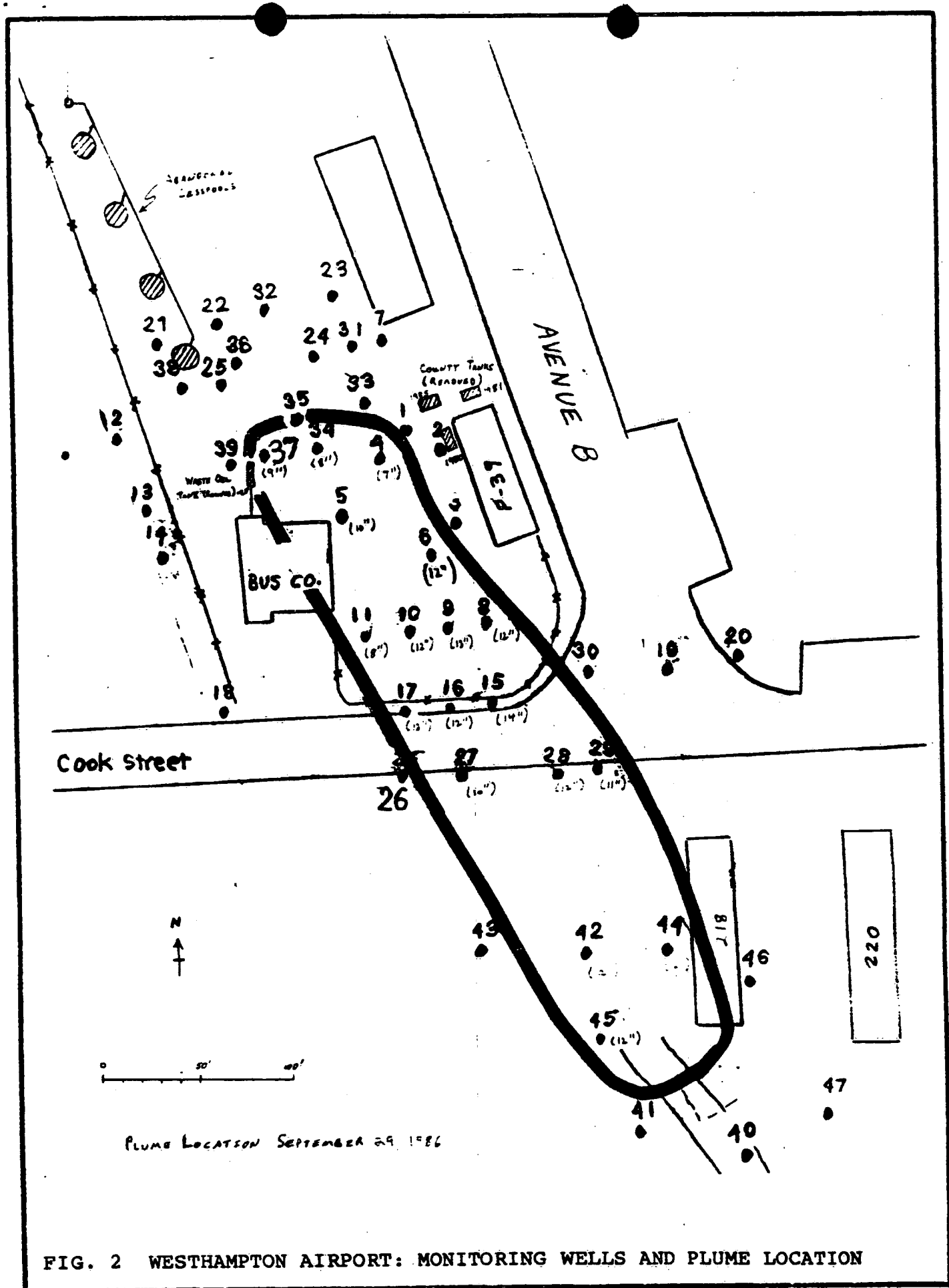


FIG. 2 WESTHAMPTON AIRPORT: MONITORING WELLS AND PLUME LOCATION

II. Hydrogeologic Setting

Westhampton Airport is situated on the southern portion of Hydrogeologic Zone III -- a deep recharge zone. Aquifer material is composed primarily of medium- and fine-grained glacial outwash sands with a hydraulic conductivity of about 250 ft/day and a porosity of about 30 percent. The depth to groundwater from grade is about 30 feet, and the direction of groundwater flow is southeast at a rate of just over 1 ft/day (under a regional gradient of 0.00125).

III. Monitoring Results and Plume Description

The first three monitoring wells were installed downgradient of the tank site in November 1985 (#1-#3, Figure 2). Well #1, located just to the southwest of the tank site, had a thin film (1/16"-1/4") of product (gasoline ?) through January 1986; the other two wells were initially clean, and have never indicated more than a trace of product.

Significant amounts of floating product began to appear in well #1 in February 1986; thicknesses ranged from 2 to 8 inches through July 1986. Additional wells were then installed further to the west, where product was detected in thicknesses up to 12 inches. A total of forty-seven shallow monitoring wells had been installed by the end of September 1986 to define the extent of the plume (Figure 2).

The plume appears to cover an area of just over 1 acre (100' width by 450' length). The upgradient limit is located behind the bus facility and building P-39; the downgradient limit lies south of building 218 utilized by the Air National Guard. Assuming an average thickness of free product in the wells of 12 inches over the entire 45,000 square foot plume (Figure 2), the estimated total volume of floating product is on the order of 40,000 gallons.

IV. Discussion

The elongated shape of the plume, and the absence of a thick central portion implies that it did not originate from a recent, sudden discharge. Instead, it may have come from a continuous

discharge over the last 1-2 years from a source near the present upgradient limit, or a discharge that occurred a number of years ago farther upgradient. The monitoring wells located immediately upgradient of the plume will be checked for product vapors which, if present, would indicate the prior passage of product and an upgradient source (possibly the abandoned cesspools).

The county tanks removed or abandoned in 1980, 1981, and 1985 do not appear to be possible sources of the floating product. All were located to the east of the plume and handled relatively small volumes of fuel, which were accounted for by inventory records. In addition, all tanks were used to store gasoline, while the floating product appears to be diesel or a mixture of fuels. Future analyses of the floating product will shed some light on the source.

The bus company formerly stored diesel fuel and gasoline in two 550 gallon above-ground tanks that did not conform to plans submitted under Article 12; these tanks have been removed. The bus company's repair bay had a floor drain that ran into an underground storage tank behind (north of) the building (Figure 2). This floor drain contained waste oil on at least one occasion, and was ordered sealed by the SCDHS about a year ago. The underground storage tank was found to be dry and out of use when inspected by the SCDHS in September 1986. Waste oil is now stored in a 55-gallon drum.

V. Recovery System Design

Floating product should be removed by installing a recovery system at the leading (downgradient) edge of the plume. Such a system should include two 100-gpm drawdown wells to prevent further downgradient migration of the plume and to create a trough in the water table between the two wells where product will collect and can be readily removed with one or two recovery wells. Water from the drawdown wells should be recharged upgradient of the plume to create a water table mound, which will accelerate movement of the product towards the recovery wells; provisions for air stripping should be included in the system design in case dissolved components such as benzene, toluene, and xylene (BTX) are encountered in the water pumped by the drawdown wells. Experience indicates that recovery operations will take at least 3 years.